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ORIGINAL (Red)

BEFORE THE ENVIRONMENTAL PROTECTION AGENCY

In Re:

DORNEY ROAD LANDFILL

PUBLIC HEARING

Taken, pursuant to notice, in the Upper Macungie Township Municipal Building, Schantz and Grim Roads, Breinigsville, Pennsylvania, on Wednesday, August 31, 1988, commencing at 7:00 p.m., before Wendy Engler Shade, Registered Professional Reporter.

BEFORE:

FRANK KOLLER, Community Relations Coordinator, PADER
TIMOTHY ALEXANDER, Site Project Officer, PADER
EARL BROWN, Project Manager, ICF SFW Associates
JEFFREY WINEGAR, EPA Remedial Project Manager
DR. RICHARD BRUNKER, EPA Toxicologist
TIM ALEXANDER, DER Project Officer
JEFF ALLEN, Hydrogeologist, ICF Technology

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MR. KOLLER: Good evening, ladies and gentlemen. My name is Frank Koller and I'm a community relations representative with the Pennsylvania Department of Environmental Resources. I want to welcome you to this meeting this evening to discuss the Dorney Road Superfund site, and also want to thank you for your interest in showing up here tonight.

First of all I want to remind everyone to make sure that they sign the registration sheet. That will be used in the future for any mailings that we have regarding the site.

The second item that I would like to remind you about is that later on in the program, and if you have picked up an agenda, you'll see that we will have a question and answer session. We have a court reporter here tonight, so to make things easy for her, would you speak clearly and loudly when you have your comment session.

The last item of business before we get under way will be to introduce the participants at this table here. On my far right is Jeff Winegar, project manager, Environmental Protection Agency; Dick Brunker, EPA toxicologist; Tim Alexander, DER project officer for the Dorney Road site; Earl Brown, project manager, ICF Technology; and Jeff Allen, hydrogeologist with ICF Technology.

The written comment period will be open until September the 14th, so if you choose not to make public comments tonight, there's still time to get your comments in to us.

Now, with that background, I would like to introduce Tim Alexander. As I said before, he's the project officer for the Dorney Road site and he is with the Department of Environmental Resources. Tim?

MR. ALEXANDER: Thank you, Frank. I want to thank you all again for coming this evening and thank you for your interest and giving consideration to the problem out there.

The purpose of this meeting is to essentially review the results of the remedial investigation that had taken place out there this past year, and to discuss proposed remedial alternatives at the Dorney Road site.

Now, one thing I want to make clear right away is that we're treating the site in two phases, and the terminology is operable units. The first operable unit, and this was spelled out in the advertisement which you all probably saw in the

Allentown Call, addresses the landfill proper. And that entails a proposed capping alternative.

The second phase, and this should be coming sometime this February, I believe, we'll issue another feasibility study and at that time we'll be considering alternatives for looking at ground water, and the ground water contamination out there at the site.

Okay. I'd like to just give a historical perspective of when the site was listed and where we are today. Essentially the site was proposed for the national priorities list in 1983. In 1984 it achieved its permanent listing.

The Department entered into an agreement subsequent -- with the EPA subsequent to that listing in 1984. We issued an RFP or a request for proposals to actually conduct the investigation at Dorney Road in 1986. It was April.

We entered into a contract with ICF SRW in September of 1987, and since that time we've been very busy. We worked through the winter and spring this year to produce the remedial investigation and to present to you the remedial alternatives for the landfill proper.

This all took place in a total of about 11 months, the investigation and the selection of a proposed alternative. And that's rather fast. That's a fast track in comparison or in light of, I'd say, on a national average the figure is generally 18 months before we arrive at this point.

So we worked through the investigation and attempted to accelerate the investigation as much as we possibly could so that we could address what we feel are some problems out there at the landfill.

To further elaborate on why it takes so long sometimes to get through these investigations, the agencies are constrained by essentially the National Contingency Plan, which is the set of rules and regulations which proscribe the manner in which we must go about our investigation. They're sometimes inflexible, and in essence we're asked to determine the nature, the extent and degree of contamination out there at the landfill, to assess contaminant migration, and to perform an assessment of environmental and public health effects, and I think we've come a long way in the past 11 months.

So with that, I'd like to turn the program over to Mr. Brown and Mr. Allen of ICF who were our consultants for this project.

MR. BROWN: Thanks, Tim. You kind of covered some of the intro stuff I was going to say, so I don't know where to start here.

Basically as Tim said, we are under contract with the Pennsylvania Department of Environmental Resources to perform this remedial investigation feasibility study. So we were out there as the prime contractors basically doing all the work under the direction and guidance and approval of the agency.

The purpose of us being out there to perform this for IFS was basically to determine the nature and extent of any of the contamination that was found at the site. Taking that, we then went on to assess potential risk to the public health and the environment.

During our field activities, we also tried to collect data that we felt we would need further down the road to help us support our feasibility study efforts.

And then finally, into the feasibility study, the purpose was to evaluate a range of alternatives and attempt to identify a most cost effective alternative to remediate the site.

What Jeff and I want to try to do is tell you, you know, from our view in going through and actually performing the work, what we did out there and some of the reasoning and thinking, and in a brief presentation of some of the results that were concluded upon to try to help maybe answer some of the questions you may be thinking about, something you might not have understood.

So with that, Jeff's going to get started. Jeff was our hydrogeologist out on the field pretty much overseeing the field activities and involved in a lot of the decision making and things along the field.

So I'm going to let Jeff go over the sampling methods and the results of the data we obtained during the RI and I'll get back to you and tell you kind of what we did on the rest of scenario.

We're going to need a minute to get this thing and make sure it's working right.

MR. ALLEN: We had this all set up before and moved the table and -- the screen rather, and changed the focus.

Landfill proper comprises about 18 acres along Dorney Road. I'm sure everybody pretty much knows where the site's located. The eastern edge of the property during a regrading effort by the EPA to control runoff installed some snow fences along the edge, along this property in here, and during that time, they installed some runoff control and some ponds within the landfill to collect surface runoff.

During our portion of the investigation, we basically performed -- well, we performed air reconnaissance, geophysical survey, soil sampling, settlement and seep settling monitoring, well installations, ground water sampling, and finally we did a geophysical survey of the bore holes and permeability testing, and then the last effort was -- I mean contaminant material handling.

And what I'm demonstrating here are the locations of the air reconnaissance survey. During this phase of the operation, we were trying to determine the extent of contaminants migrating from the site via air. What we basically found was that everything was within background levels and only very low level concentrations were detected.

We also performed geophysical survey of the bedrock. This was performed with a refraction survey. We did 5,980 linear feet of seismic profiling around the perimeter, outside perimeter of the site, and we performed 5,290 feet of seismic profiling within the landfill.

The purpose within the landfill was to try to determine the extent of waste within the landfill for possible feasibility efforts, you know, that may arise in the future if, you know, if so be.

MR. ALEXANDER: Excuse me, Jeff. Just so everyone knows, the seismic profiling is really to determine the depth to bedrock, and that's important when we get into our ground water study, which is primary focus probably of the investigation, to look for contamination migrating off site through the ground water, okay? So everybody knows why we did this.

MR. ALLEN: Soil sampling was performed in the earliest part of the investigation. Samples were screened on 1100 foot grid, it was called a slam bar test. In a slam bar test you drive a steel cylinder into the ground approximately a foot, you install a photo-ionizing meter that will detect any organics that develop within that void space.

We found four locations that did show contaminants, so based on that, we did sample those within our surface soil sampling phase. We also sampled an additional 24 surface soil points within the landfill. We sampled 11 surface soils outside the landfill around the perimeter site, plus we collected one background sample, which you can barely see on the corner of the map up here, which we used for our comparison to determine whether it was within natural ranges or site related.

We also collected 19 subsurface samples. The subsurface samples within the landfill were broken down into waste samples and natural soil samples. The waste samples weren't actually the waste, but they were the soils interspersed within the waste.

The idea behind that was to characterize the possible contaminants that were within the landfill and the natural soils were sampled so that we could evaluate if contaminants were migrating from the waste into the soils beneath it and off the site.

The off site surface soils were

collected during the monitoring well installations, and we collected -- during that time we collected nine off site. Six were shallow and three were deep. They were screened basically -- the deep samples off site were based on whether we encountered the water table or whether we saw something that appeared to be potentially contaminated.

During the sampling of the surface soil we also sampled the ponded locations within the landfill. Since it was winter, we sampled the surface water and the sediments at the same location by breaking a hole through the ice, sample the water and sample the sediment immediately beneath it.

The purpose of that was so that we could do comparisons between the sediment and the surface water to evaluate whether contaminants were leaving via runoff during heavy precipitation events.

Upon completion of the surface soil sampling, we installed monitoring wells within the landfill, and off-site we installed a total of 12 off-site monitoring wells and a total of 6 on-site monitoring wells. A 7th monitoring well was actually drilled, but was abandoned due to field observations that indicated we were probably just evaluating one of the surface impoundments.

These monitoring wells were utilized to decide or rather to evaluate ground water gradients and ground water chemistry. The landfill monitoring wells were of course performed to evaluate any contaminants that appeared to be fairly mobile within the waste.

During the -- upon completion of the monitoring wells, we -- well, we performed a geophysical survey on -- performed a geophysical survey on three -- or seven of the monitoring wells, pardon me, seven of the monitoring wells, to determine water chemistry, whether there was any variation within the water column.

We also performed the survey to augment any geological information that we felt that we might be missing from the physical observations made during the well installation.

Upon completion of that, we did a ground water sampling. We actually performed that in two phases. The first sampling set included sampling of community -- community wells. We sampled seven local residences along with the 18 monitoring wells that were installed on the landfill, plus one existing monitoring well. This map indicates the layout of the landfill and the black dots indicate the residents that were sampled.

We sampled a second set of ground water samples in June. However, it did not include a second set of residents wells.

Our findings from the survey indicate that the soils primarily are composed of the Washington silt loam, they are characterized as a fairly high fertility with moderate neutral pH. The bedrock is the Allentown formation, is characterized as a fairly highly fractured dolomite, light to gray. The bedrock surface is fairly irregular, which in some respect is, you know, reflected in the ground water flow of the areas.

What we found was that we had, in evaluating our ground water analysis, we found that we had two aquifers within the area, we had a perched landfill system. The perch system had two primary features on it, a ground water mound beneath the EPA constructed ponds, and a ground water depression within the central portion of the landfill.

The ground water depression we feel is probably related to the course material that was associated with the previous mining activities in the area, within the landfill.

We found that the ground water of the water table aquifer is basically flowing towards the south-southeast. Upon encountering a major fracture system that runs south of the property, it is diverted towards the east-southeast. This last information is based on chemical analysis that tends to indicate that the plume that is emitting from the site evidently is being directed towards the east-southeast rather than due south.

We -- based on our ground water analysis, we did find that there was a plume emitting from the site. It is primarily composed of volatile organic compounds and base neutral compounds, base neutral extractable compounds.

As I had mentioned earlier, it primarily is emitting from the southeast corner of the property and is diverted towards the east-southeast, and as I said, the reasoning for that last, you know, the direction is based on ground water sample from Mr. Muth's well, which did have a detection of volatile organics, which appear to be related to the site.

MR. JOHN KNAPP: Excuse me. So that we can understand your graphics a little better, the contours that you have showing to the southeast at the present time are not -- are they what, bedrock contour lines?

MR. ALLEN: No. That is a contour map of the contaminants. We assumed the total organic compounds and the total BNA compounds which -- that's base neutral extractables, and based on those totals, we have come up with a sort of an isoconcentration of the plume that would be emitting from the site.

MR. JOHN KNAPP: So the contour is the degree of contamination?

MR. ALLEN: Right. Degree of contamination. The highest concentrations were detected in well nest 22D, which is one down here in the southeast corner.

MR. JOHN KNAPP: On the previous chart, did you -- or on any of the charts, did you show the contour of the primary water-bearing aquifer in the area?

MR. ALLEN: This is the primary

water-bearing aquifer. You mean the flow direction?

MR. JOHN KNAPP: Yeah, the contour line.

MR. ALLEN: This was the water table aquifer, the primary water-bearing aquifer to the area. This shows the flow direction within the landfill. We do not have any points outside the landfill to determine whether it naturally turns towards the east-southeast or whether it, you know, continues.

MR. JOHN KNAPP: Am I then reading correctly your contour lines there would indicate that the water-bearing aquifer that you're dealing with is somewhere in the 400 foot below surface? Is that the correct reading on those?

MR. ALLEN: That's not -- no, that's mean sea level. It's actually only around 50 feet below surface. These contours are based on mean sea level.

MR. JOHN KNAPP: Mean sea level. In the investigation, did you determine the residential water, depth of the residential water supply that you --

MR. ALLEN: That wasn't available

to us, no. We did do a preliminary survey. We did, you know, take a questionnaire to the homes that we sampled. They tend to be within the same relative range.

However, we don't know the screened intervals, we don't know the actual water level elevation, but it does -- they are probably within that same range, you know. Based on our questionnaire, it appears that they're producing from the same relative position.

MR. JOHN KNAPP: It appears just from an evening's conversation here that at least two wells are substantially below that, ours and the shed.

MR. ALLEN: Right. A lot of the ones to the north, the ones along Trexler Road, those probably are completely isolated from the site. What I'm basing this on, that discussion where we're mentioning about what they're producing from, really the ones that are related to would -- the physical site would be Mr. Muth, Mr. -- I forgot his name, Kuhns, and Mr. Kellogg. They're producing.

MR. JOHN KNAPP: Is it your assumption and is it generally true that if the upper strata is flowing in that direction, the lower strata would also flow in that same direction?

MR. ALLEN: Right. Basically.

MR. JOHN KNAPP: Not counterflow?

MR. ALLEN: No, it wouldn't be counterflow. Regional gradients from a number of hydrological studies have been done on the county, also indicate the same flow pattern.

MR. ALEXANDER: Aren't we in different rock formations too to the north, up towards Cherry Hill? Aren't we in different rock formations?

MR. ALLEN: Right. We do switch different rock formations, but the primary grading is in this direction through that entire valley.

MR. JOHN KNAPP: Thank you.

MR. ALLEN: Towards Little Lehigh Creek, which is the primary discharge.

DR. SMITH: How many sites did you go on the north and west side? The reason I'm saying this is I've got selfish interest here. Our farm has deteriorated markedly in the last two or three years. At one time we had good water, and since we isolated it to the AT&T drillings and to

Schaeffer drillings, but I guess it isn't. Our well is 200 feet deep. Now you say Terry Hill is excellent water. That's 68 feet.

MR. ALLEN: I said Cherry Hill area is different.

DR. SMITH: I mean Terry Hill.

MR. ALLEN: I'm not sure where Terry Hill is.

DR. SMITH: AT&T area, that's Terry Hill.

MR. ALLEN: We didn't go that far.

DR. SMITH: We're right behind that, to the south of it, and we are having terrible problems with our water now.

MR. ALLEN: Basically what our information shows is that we've got a ground water divide on Cherry Hill, which means anything north of Cherry Hill is being affected by a different system.

DR. SMITH: Where is Cherry Hill?

MR. ALLEN: Cherry Hill is the large hill between Trexler Road and 222. That's Terry Hill?

DR. SMITH: That's Terry Hill.

MR. ALLEN: The maps indicate Cherry Hill.

MR. KOLLER: We need that gentlemen's name for the record.

DR. SMITH: Dr. Smith. I live south of 22 right behind Terry Hill. And that's T-E-R-R-Y.

MR. ALLEN: Okay. All the state maps indicate Cherry Hill.

DR. SMITH: Those must be democratic. I'm sorry.

MR. ALLEN: Our water analysis of the homes along that Trexler Road indicate the water's fairly good in that area and it's probably from a different system, so as far as it being affected from the landfill, our analysis doesn't indicate that it's in that direction. However, you know, we're basing that on the data that we have.

DR. SMITH: I'm sorry to dispute you, but the water varies from time to time. We have checked ours. We get iron samples up to 5 parts, and sometimes it's nonexistent, and depends upon how much rain, how much.

MRS. MARIE SMITH: Drought.

MR. ALLEN: I won't dispute you.

I don't know. Like I said, our survey was based on --

DR. SMITH: No one ever came around.

MRS. MARIE SMITH: My name is Marie Smith. Wouldn't it be a good idea to have all the wells in the area tested?

MR. ALEXANDER: I'll tell you what. Our study shows that that hill to the north, okay, is relatively uninfluenced by the landfill. We're out there, the purpose of our investigation was to investigate the impacts to the surrounding area, okay, from that landfill. It's not that we're not concerned about your well, but I think we ought to take that concern and maybe put it in a different perspective. And we can talk about your concerns later on, but the conclusions of this report, and they're certainly subject to comment --

DR. SMITH: The reason I brought this up, sir, is I went to the Lehigh Authority, Clarence Reichart, about it, and they push you off too. It's not any of their problems. But they also are the problem, the Lehigh Authority. Because since they started drilling big wells, our water has --

MR. KOLLER: We can deal with that at the conclusion of the meeting. Talk with Tim and I about that, please.

DR. SMITH: The only reason I said that is no one came around to check any of our things.

MR. ALEXANDER: But please understand that the focus of our investigation was that landfill and the impact of that landfill on the surrounding area, okay? We weren't really focusing on impacts of perhaps the deleterious effects of large producing wells in the area.

DR. SMITH: But we're north of there, but no one ever came around to us.

MR. ALEXANDER: We did a survey of the area and we took a number of samples off of Trexler Road, and we thought that those samples would be indicative of the residents along Trexler Road. So we did take a representation of samples from that area.

MR. ALLEN: Based on our residential sampling, only one residential well detected any organic compounds and inorganic compounds above, you know, natural background conditions.

MR. ALEXANDER: For example, we took samples of Mr. Kellogg's well which is just north of --

MR. ALLEN: And Bill Dorney.

MR. ALEXANDER: Which is very close to the landfill, and found no contaminants in that well that we assigned to the landfill. So we'll look at exactly where you live, et cetera. We'll try to understand just what your concern is.

MR. ALLEN: Our evaluation of the soil sampling indicated that there was organic compounds within the landfill, base neutral extractables compounds within the landfill. It also indicated that metals in elevated concentration were detected within the landfill also. However, we were not able to discern any particular areas of high concentration within the metals, any clearly discernible areas.

As I'm exhibiting here, this is indicating that there was within the volatile organic compound fraction several areas that did have relatively high concentrations on the surface soils. However, they may be just indicative of what was regraded during the EPA regrading effort.

Now, several of these areas were not

addressed during that effort, so it's not necessarily indicative of the -- I guess what I'm trying to indicate here is they are not necessarily the only possible contaminated areas within the landfill. Our off-site surface soil, subsurface soil sampling did not indicate that there was much migration from the site; however, it did indicate some very low level contaminant migration indicating that maybe there is minor contaminant migration through what is known as the unsaturated zone.

The surface soil seep sampling, the surface -- rather surface water sediment and seep sampling indicated that there was minor contamination of the surface water and related minor contamination of the sediments. The seep area to the south on the southern property does indicate that there are contaminants migrating into the near vicinity property line. I guess that's --

MR. JOHN KNAPP: When you're speaking of no contamination outside of the area, was any determination arrived at for the death of the substantial number of trees that's the hedge row in what would be the jog on the Wessner property and the landfill? That is commoner to the plume that you were talking about.

MR. ALLEN: That's actually portion of the landfill. There is waste right up to that edge, so, you know, there is contaminants.

MR. JOHN KNAPP: But it continues west along that tree line substantially farther than the immediate few trees in the corner. You had -- I assume the unit in the northeast corner is the stake up from the corner on the Wessner property was --

MR. ALLEN: You're mentioning the well nest that we had within that portion there?

MR. JOHN KNAPP: Over on the land, excuse me, on the border of the land where it then goes south-southwest, the next corner over. Up farther. Put your finger somewhere. Bring it to our left, left and away from us that way.

MR. ALLEN: Right in there?

MR. JOHN KNAPP: That corner. That tree line all along that area.

MR. ALLEN: There is surface contamination in that area, but that's actually, like I said, part of the waste area. So let me go back to this figure.

MR. ALEXANDER: Jeff, as you can

see there is surface contamination in that area. There is surface contamination within this portion of the site S which could result in, you know, stress vegetation as seen in that area.

DR. SMITH: So that the plumes you showed and the surface contamination are really unrelated in the plumes that you're talking --

MR. ALLEN: The plume is within the ground water aquifer.

DR. SMITH: And the surface contamination are two different things?

MR. ALLEN: Well, they're related in that the surface, the contamination that's within the waste will migrate vertically downward, encounter the ground water aquifer, and be directed based on gradients within the aquifer off-site. And that's what the plume basically is.

The plume is the geometric shape of the contaminants as they leave the site through the water table aquifer. However, they aren't necessarily, you know, what you're seeing.

Stress vegetation in this portion is probably more related to the surface contamination rather than necessarily the water table aquifer, you know. The water table aquifer in that area is about 50 feet down.

Now I won't say that it isn't, but I said it's more than likely probably due to -- plus methane migration. Methane can stress vegetation.

MR. JOHN KNAPP: Those were primarily walnut, which is a tap rooted tree rather than a surface rooted tree, and that was the reason for my questioning as to -- certainly I was not here physically when the iron mine was there and how deep it went, but it would be difficult to imagine that that many walnuts, where there are deep tap roots, are fairly substantial aged trees, I would imagine in the 60 to 75 years.

MR. ALLEN: There may be a minor halo forming within the water table aquifer in this portion; however, our well nest that's installed in there, in the corner, does not indicate that the water table aquifer is contaminated in that area.

MR. JOHN KNAPP: Did not show contamination?

MR. ALLEN: Did not show contamination. So that's what we're basing discussion on.

MR. JOHN KNAPP: Just trying to understand your logic. Because you didn't specify what metals or what locations you did find contaminants on.

MR. ALLEN: Right. I was just trying to give a really brief overview of what we kind of did out there without going into too much detail.

MR. ALLEN: I think from this stage we'll go into the discussion of the feasibility study.

MR. ALEXANDER: Before we get into the feasibility study, and I guess this is the part, that was a lot of information you folks were given just then, and do you need anything reviewed or are there any questions regarding the investigation and the migration of contaminants or the contaminants themselves that we found in the landfill?

MR. JOHN KNAPP: Yeah. That was the question. I was wondering when you were going to cover what were the materials that were found and the degree of contaminants. You used some rather generalized terms of the nature.

MR. ALEXANDER: Those isoconcentrations that Jeff showed you in the ground water table, I think he explained what those contaminants were, and it was the sum total of the volatiles, I believe.

MR. ALLEN: Right.

MR. ALEXANDER: Volatiles are a class of organic compounds which essentially have a vapor pressure which are, you know, greater than air, and will tend to evaporate just like acetones.

MR. JOHN KNAPP: Some organic volatiles are not detrimental, some are.

MR. ALEXANDER: That's correct.

MR. JOHN KNAPP: That's what my question is. I'm wondering if you are going to get to define some of the detrimentals.

MR. BROWN: That's what I'm going to lead into.

MR. ALEXANDER: Excuse me if I was awfully rudimentary there.

MR. BROWN: What Jeff basically gave us was the nature and extent, the type of chemicals, what concentrations and where they were located. The next thing we did then is took our toxicologist and our health-base people to try to determine what those chemicals meant in terms of risk to the local population.

And in doing that, one of the first

steps that's done is identifying the chemicals of concern, chemicals that occur frequently in the highest concentrations, the toxicity values assigned to those chemicals based on studies that have been done, and et cetera.

Using this list of chemicals of concern, then we focus on quantitative risks, potential quantitative risks to the public and to the environment. After we have these chemicals that we feel are potentially causing risk, typically what's done is you need to have a person or a receptor who this risk can be imposed on, and you need a pathway of migration.

So the second step in the public health evaluation that we did was to identify these pathways and try to identify our receptors. We do this looking at two scenarios. We do it at a current scenario as a site as it is now, and then we do it at a future use scenario.

And through that evaluation, we determine that on-site we did have a pathway currently through incidental ingestion or direct contact to the surface soils or the surface water that occasional trespassers or hunters, we call it recreational users. We understand that that site was used for hunting or whatever.

In the future use, we assume that the site would be developed as a residential area, and that we would have people living there or -- and then in the future use we had an assumption that the workers that were going to do the remediation would be exposed.

So those were the pathways, and again they were dermal absorption and incidental ingestion. So those are the two pathways and the two set of receptors. So we have chemicals on the site. We have the chemicals of concern and we've identified pathways.

Then we go into our quantitative risk assessment, trying to estimate what level of risk we're actually going to have. I think I'm going to be a little short on my table here, so I'll try to move it back and forth as I go. I don't know if you can read these. Not very well.

These tables and figures we took entirely out of the reports that are in the repository. If there is any particular question they are available for you. I'm not getting a real good picture here.

We looked at two types of risks, two

classes of compounds, the carcinogens, or cancer-causing compounds, and the noncarcinogens.

For the purposes of our report, we assumed an excess risk for a carcinogen if it was at the 10 to the minus 6 level, or one person in one million.

For the noncarcinogenic chemicals, we assumed a hazard index ratio greater than 1. The details of that, if there's any questions on that, we can talk about Dick later on or we'll answer them when we talk about the public health.

In doing that, we had determined under the current scenario that we had under plausible maximum conditions a 10 to the minus 5th risk to adults trespassing on-site. The only noncarcinogen, if I can move this over, risk that exceeded 1 were both to the soil on-site, okay, both for teenagers and adults.

And in evaluating that, the teenagers and adults, there's a number of presumptions that were presented in the report that are used based on U.S. EPA guidelines on body weights and number of exposures and things like that.

For the current conditions also we found an excess cancer risk to the on-site surface water.

Under the future use scenario, under the future use scenario where we assumed a residential use, we found that there were excess risks to all trespassers, residents, to the ground water, surface water, all the media on-site that were sampled.

MR. KELLOGG: What that means is no residents. It's not safe.

MR. BROWN: Yeah. In the future it's not safe too.

MR. KELLOGG: I'm glad you're going under that assumption.

MR. BROWN: One thing you have to realize on the public health evaluation, a big all-encompassing assumption that's made is that it's under the no action assumption. In other words, the site will remain as it is. That is if somebody went out there and built a house and nothing was ever done, the site, they went out there tomorrow, okay, that's without any remediation.

Okay. In concluding in the public health evaluation then that we do have an excess potential risk, a feasibility study to remediate those risks seems warranted. We went on at that point to do the feasibility study investigation.

As Tim had mentioned earlier, at this point we did an operable unit feasibility study to address those risks with dermal contact and incidental ingestion to the soils and the surface water.

And essentially the first thing we do is identify those objectives that we want to address, and those are our remedial response objectives. And to repeat what I had just said, the direct contact through ingestion and absorption to the contaminated solids and soils throughout the site is one objective.

The second one is the direct contact with the contaminated surface water. Also in our objective in doing the operable unit feasibility study was to be considerate of the next feasibility study we're going to do where we had to evaluate remediation of ground water. We took into account anything that would be derogatory, impair any potential remedial action we would have for ground water. So those were our response objectives in going into the feasibility study.

The next thing we do from that, and

everything we do in the feasibility and the RI feasibility study process is based on guidelines that we -- that have been developed and are ongoing and developed by the U.S. EPA.

So the next thing we did was identify our general response actions. I guess I better pay closer attention to this. I'm looking. These are response actions that are general remediations that can address these three objectives that we had presented earlier. They go through a range from the minimal or no action alternative where we would just have indirect methods of controlling the hazards, to a containment where we physically isolate the waste through a removal where they are actually dug up and removed.

With removal is a disposal, which is placing them in a permanent storage area somewhere, on to treatment. The treatment is the fullest range of response option you can do in that it basically in some form or another immobilizes or detoxifies the waste.

To address these response actions, we identified potentially applicable technologies. And what they are is they're just construction or physical process, technologies that can be employed to achieve that goal from the initial objectives we had through the response action we have on the left.

Some typical examples for containment, we can contain them with a soil cover or concrete cap or multilayer cap, et cetera. Treatment can vary through soil vapor extraction, biological treatment, incineration and a number of things. We're required by the regulations to evaluate all these potentially applicable alternatives.

We went through that and we identified 32 technologies that we thought were applicable to the site and the conditions we had.

The next step we do is -- to evaluate all of them in detail would be very extensive, so we go through a screening process of technologies. We use three criteria basically to evaluate these technologies at this point. It's their effectiveness, implementability, and then in a lesser sense, cost.

Now, in evaluating the effectiveness, it's whether the technology that we've listed there will effectively meet that objective we have of protecting direct contact or migration or whatever the ones I talked about earlier.

The implementability comes into play in can it physically be done at this site. Is there some construction restraint or is there some administrative problem that would interfere with this. So we evaluated that list of 32 and we found that based on those criteria 15 of them were retained for evaluation and assembly of alternatives.

We also identified at this point two ancillary actions which are not basically alternatives or technologies that can stand alone to remediate the site and meet the response objectives, but something rather that will be done in conjunction with one of the other alternatives to develop, and that would be the monitoring of the runoff of the surface water and ground water and also to vent the landfill gas that is being produced, because it is a municipal landfill.

Now, in an attempt to identify a range of treatment alternatives that we could focus on, we tried to identify areas on the site that we could classify, quote, hot spot areas, areas that were highly concentrated contamination focused in one area, in all the media, you know, all the way down from the surface, the subsurface, the ground water in that area.

If we could focus and identify that area, you could reduce a great majority of the risk by addressing a small part of the site. Through the data that Jeff went over, we found that the contamination was basically within the landfill area that I have darkened here, it was everywhere.

We went through looking at each fraction, the volatile organics, the semi-volatiles, the metals, and it would be high in surface soil in one area, low in base neutrals in the other area, and it just didn't match up, so we couldn't identify one particular hot spot to focus on.

Therefore we had to address the entire site area. And what I have here is the dark area delineates the extent of the surface in a plan view. The surface from there down on the depth is indicative of where we through our investigation identified contamination. So those are the areas and volumes of material that we're talking about to remediate.

We came up with five alternatives. Through using those technologies that remained, we came up with five alternatives to remediate the site. The first alternative, the minimal no action alternative is required by the NCP for us to evaluate just to use as a baseline for comparison to the other alternatives, both in effectiveness and in cost and the other criteria that we'll get into later.

We do have some actions that are proposed for that, to put a perimeter fence around the site, inflict deed restrictions on use to prevent residential development, and then to do a monitoring program, both runoff from the site and in the ground water. That monitoring program is designed to detect any changes. Is the condition getting worse. At that time the response action or something would get -- the wheels would get turning again.

Our second alternative is basically a containment alternative. It's a simple form of a containment alternative where we put a soil cover on. Okay.

In addition to the -- essentially these alternatives build on the preceding one, they kind of get a little better every time, theoretically. There's more things that are done. We kind of add something or we go through different process option from just containment to removal to treatment, through that scenario. That's the gradiation we kind of go through. So we added a regrading of the surface with runon and runoff controls for surface water and we put a soil cover on there, two foot soil cover to prevent the contact with the contaminated soils.

Alternative three that we developed is a revised version essentially of alternative two. And we have two versions of alternative three. The soil cover consists basically of one two foot layer of soil and a vegetative level.

In alternative three we're talking about applying a multi-layer cap on the site which would consist of alternating more than one layer, alternating soils and synthetic liner material. We have two types of caps that were considered that based on the different regulations, the RCRA regulations and the PA state regulations. They vary somewhat as explained in the report. Basically the difference between the RCRA and the state is an additional two foot clay, impermeable clay layer which the RCRA requires which the state regulations don't.

So through the feasibility study we

will have addressed alternative three as one alternative, except in those instances where because of that two foot clay layer on its performance or meeting criteria, whatever, made them different. We pointed that out in the report.

Okay. Our next alternative was a removal, and a removal alternative and a disposal where we were going to put everything in an on-site RCRA landfill. And what that would entail would be excavation of the contaminated areas on-site, and it's a staging process, where you would excavate an area and put in place a RCRA landfill.

Now the RCRA landfill in addition to having the multi-layer cap over the waste also has a complete liner underneath the waste, so all the waste therefore is completely three dimensionally contained.

The final alternative that we developed was a treatment alternative. It's more incineration, on-site incineration of the material, and essentially it takes the same excavation, the same material that we had in the RCRA landfill, but prior to redisposing it back inside the lined landfill system the incineration would be performed which effectively eliminates the organic contamination.

So now we have all these five alternatives that we want to evaluate, to take a look at and see which ones are technically feasible, cost effective and other criteria.

CERCLA has nine criteria that we typically use to do a detailed evaluation of each alternative. That is presented in the feasibility study report. What I'd like to do here is just give you a summary of how some of the alternatives compared with the other alternatives for these nine criteria.

The first criteria we evaluate is short term effectiveness. This means it's the effectiveness of that alternative to reduce the short term risks. The people that could be affected there are population living there, which we identified there were no people living there and there's none living within 1000 feet of the site, the travelers that may go up and down Dorney Road.

Alternatives four and five may present a low, what we classify a low short term risk, due to the excavation of the material, the exposing of it. That would be just at various times. That would be intermittent dependent on where they were digging. It's really hard to predict that.

The other, I can't think of the word, the other person or party that would be affected would be the wildlife, and they would on all the alternatives, except for the first one, they would be temporarily displaced. There appeared to be similar habitats surrounding the area that during the short term, when the alternative was implemented, the wildlife would have to relocate, but they could eventually work their way back.

And then the workers actually doing the performance of the remediation for the alternative one, the minimal, there's actually no risk to the workers. They're -- putting the fence and the deed restrictions on doesn't get in an area of contamination.

Alternatives 2, 3A and 3B where we put the cap or the soil cover on the site, there's a low to moderate work -- or risk to the workers when they are actually implementing this. And 3, 4 and 5 we estimated a moderate risk due to the -- to the workers again due to excavation and handling of the material.

The next criteria -- what I'm trying to do here, and I don't want to talk and have you lose track, I'm trying to compare all the alternatives 1 through 5 together through each one of these criteria, okay. So that's why I'm starting with the first one and see how it satisfactorily or dissatisfactorily conforms with these criteria, how it stands up.

Okay. The next one is the long term effectiveness, in the long term how will this alternative reduce risk. For alternative 1 it's very minimal. It doesn't really do anything. For alternatives 2, 3A and 3B, they're essentially all equal in their effectiveness in reducing future risk to dermal contact and incidental ingestion because the material is going to be covered. It's going to be separated from people who may come in contact with that.

One added benefit that we have with the effectiveness in the alternatives 3A and 3B over alternative 2 is that it will also reduce -- it's an impermeable layer, whereas the soil cover isn't. It will reduce infiltration into the landfill, and that becomes very important in our next study where we evaluate remediation to ground water, because infiltration down through the waste is a primary source and a primary migration pathway you have to be concerned with.

In the future all these alternatives 1, 2, 3 and 4, there is a potential risk in the future because the wastes are left on-site. They are not destroyed or anything, they are left there, so that was part of our determination in this criteria.

Alternative 5 gives the best long term effectiveness or reduction of risk in that, as I said before, the incineration destroys the organic contamination. However, it does nothing to alter the inorganic contamination.

The next criteria that we evaluated -- I know I'm talking on a little bit. Maybe you can get appreciation from us of the tedious process it is. We could spend time and really go through, and I'm being very brief as to the time of the things we did to really cover and evaluate, you know, each alternative, each technology for all these criteria to try to come up with the best scenario we can.

The toxicity, mobility and volume. What we try to do with the alternatives is reduce any one or all three of those hopefully. Alternative 1 doesn't really affect any of them. It doesn't reduce toxicity, mobility or volume of any of the contaminants.

Alternative 2, the soil cover has a little reduction in mobility from the surface contaminants, okay, due to surface runoff. It doesn't affect in any way the toxicity or volume.

Alternatives 3A and 3B where we had the multi-layer cap again, the impermeable cap, it also helps on top of the soil cover to reduce mobility from the surface. It helps reduce mobility from the subsurface waste or anything where the infiltration could carry the contaminants through there.

Alternative 4, that was our RCRA landfill where besides the cap we also had the liner, where we had a complete closed system. That essentially gives complete reduction of mobility. The contaminant -- unless it fails, okay. The contaminants will not migrate at all. But that alternative doesn't do anything for reduction of toxicity or volume.

Our 5th alternative is the destruction through incineration, hits all three. It affects, it eliminates the toxicity, mobility and volume of the organics because the incinerator has to perform at 99.99, six 9's, efficiency, so for the organic material, it's essentially handled all three of those criteria.

For the inorganics it will be similar to the -- since it does not destroy the inorganics, it will be similar to alternative 4 in that it completely encapsulates it and keeps it from being mobile. However, it doesn't affect the toxicity or volume of the inorganics.

Our next criteria is implementability, which is basically just can it be done, okay? Number 1's very simple. Number 2 also to put a soil cover on the site is very simple. Alternatives 3A and 3B are somewhat more difficult, installing the cap and the regrading and everything, but they're common construction practices through the solid waste industry that are readily available and can be done very easily.

Alternatives 4 and 5, as far as the criteria of implementability, they become a little more difficult due to the large volumes of waste that are being handled and how this has to be staged to create parts of the line to put the material back in and handle it and carry.

In 5 we have to transport over to the incinerator, transport back, and these alternatives, alternative 4 is projected to go on for five years. Alternative 5 is projected to take 12 years to implement. So as far as implementability, we think those are fairly difficult.

The next criteria I'm going to skip over, cost, and kind of sum up with that. I'm going to get out of line a little bit. The last criteria is compliance with ARAR's. The ARAR's are applicable relevant and appropriate requirements that can either be regulations or other standards that we have to meet.

There are three types of ARAR's, and the first being an action specific ARAR, which is a regulatory requirement to do any specific action that you may be doing, whether it's a treatment or whether it's installing a landfill, something like that.

All of our alternatives during the design phase would have to be designed to meet the action specific ARAR's. We would -- there's potentially one problem with one of the alternatives in design in meeting those ARAR's, would be with the alternative 3B, the state cap without the additional liner. It would not meet the RCRA requirements. They are not as stringent as those, so we would not meet those.

The location specific ARAR's that may be applicable to the site include areas like historic monuments, Indian burial grounds, wet lands, things like that. There's a number of agencies we can get all those lists. They weren't applicable at the site at all. We didn't find anything out there.

And lastly the compliance with ARAR's in evaluating this criteria is a chemical specific ARAR. They would be applicable to alternatives 2 through 5 where we would have, with the surface water, where we would begin removal of that surface water on-site. We would have to meet all discharge and water quality criteria.

The next criteria is the overall protection of human health and the environment, and it's kind of a conglomeration I guess of a number of the previous ones really and the effectiveness, I guess, the long term effectiveness.

The first alternative overall basically gives almost no protection, no protection of the human health and environment.

The second as I mentioned earlier does

overall prevent ingestion and dermal contact to the surface soils. The third alternative, 3A and 3B go a step farther with the impermeable barrier preventing migration downward through the contaminated material.

Overall protection, alternative 4, with the containment, complete three dimensional containment of the waste, we provide a better degree of overall protection, and alternative 5 again provides the maximum protection with a total destruction of the organics, but again there were some short term problems over the 12 year implementation.

The next criteria we have to evaluate is the state acceptance of the alternatives. Being as this -- as Tim explained earlier, that the state was the lead agency on this, through an agreement with EPA, they've been monitoring the project and input and overseeing us the whole way. They essentially -- their acceptance is inherent because they are part of the project team.

The community acceptance is what we're trying to find out now through the public comment period, the public meeting tonight and the rest, till the 14th, that Frank had mentioned, any written comments we may receive.

Okay. The last thing I'd like to get to, the reason I went out of order with the cost is when I go to buy a car, how much does it cost, that seems to be a big thing to a lot of people, is the cost of something. It's just one of the criteria, one of the nine criteria, but a lot of people look closely at it, so I saved it till last.

Our first alternative, the minimal no action, we are looking at the numbers in the righthand column, the total present worth cost of $760,000.

To explain what that number represents is anything that we go out there and do, it's going to have an initial capital cost to go out and buy everything, okay? And then it's going to have an operating and a maintenance cost, whether it's repairing fences or repairing the incinerator or anything like that through the life of the project, okay?

Well, we assume a 30 year performance period for these alternatives, and what we do is we calculate the present worth of -- we take the capital cost, add that to the present worth of that operation and maintenance cost that would be spent over 30 years and bring it all back to today's value. So every -- whether we have an alternative lasting one month, six months, six years, twenty years, they can all be cost-wise compared evenly, because it's all back in today's dollars. That's what the present worth is.

Our soil cover, which was the two foot soil cover on-site, was 6.9 million dollars. Going up from alternative 1, alternative 3A and 3B respectively with 15 and 14 million dollars. As I mentioned earlier, 3B is -- essentially the basic difference is minus a two foot impermeable clay layer. That's the basic difference in the cost.

You may think that a million dollars is a lot for a two foot clay layer, but just to let you know, it may not actually be that much. These numbers are rounded to two significant figures, okay? So in the rounding of these numbers, okay, it may not actually be that far apart. So just in case somebody was thinking that.

To implement alternative number 4, the on-site RCRA landfill, we have a total cost of 46 million dollars.

Then we get to the final alternative with the incineration or the complete destruction of all the organics, and it has a price tag of 670 million dollars. And what essentially is done is these nine criteria are valuated and the most cost effective for -- that performs well and is cost effective is eventually chosen based on some input we get from the public and so on and so forth. And that kind of wraps up our presentation.

I got a little lengthy and I apologize for that. When you get talking you can go on. We tried to cut it back, but Jeff and I are both blabbermouths, I guess.

But we tried to explain, maybe answer some of the questions that people would have. It's an awful lot of material to read, okay, and you know, just try to guess and give an understanding from our perspective of what some of the thinking was and some of the procedures we go through to actually do these things. And if we didn't answer all your questions, we're open to them right now, I guess. Question and answer period. Thank you.

MR. KOLLER: Please state your name.

MS. BARB LOVE: Barb Love, Trexler Road, Breinigsville. I'm curious about a few things though. I read a report. It was a draft remedial action master plan for the Dorney Road site, December 1984. It was prepared for DER by Ecology Environment Incorporated, and also back in 1977 was a ground water module phase one for the Oswald landfill.

In both of those reports I noticed they mentioned that there were no sinkholes within a quarter mile of the landfill, and that seems to be the only thing that would shoot holes in the cap and the multi-layer caps and everything that you're mentioning, because if we had sinkholes within that area, which were attested to when we had hearings for the expansion of that landfill back in 1979-1980, they were within 20 or within 50 to 200 feet of the existing landfill.

And I mean if we had sinkholes that close and that's part of the Beakmanton group, if I understand it correctly, that is very prone to sinkholes. I mean wouldn't that just be like 14 million dollars down the drain if say like --

MR. BROWN: At the time of the remediation plan, that is based on literature data and data available at that time. Through our seismic work we went out and tried to identify and map the surface of the bedrock, okay, we did identify sinkholes around the outside of the site.

We didn't identify any sinkholes within the limits of the site boundary, that shaded area that I showed you we were going to address. We did not identify any sinkholes in there. So the problem of sinking and collapsing affecting the cap wouldn't be relevant.

MS. BARB LOVE: I guess during the hearing we had people attest, now this was something that you know you can't really put your finger on, but I think it's something that should be considered, that there were sinkholes that were filled on the Dorney landfill site.

MR. BROWN: We don't really have knowledge of sinkholes on the site itself. The impression we have on the site from the information we were able to collect was based on the old iron mine pit in the central area of the site.

MR. ALLEN: It was believed to be the old ore body they were mining that was the deepest portions of the original landfill that was, you know, or rather the original portion of the landfill that was filled. Now that's our information. That's all we know of.

MR. BROWN: As I said, the

geophysical work we did do through the site was in order to map the bedrock, and the first expression of a sinkhole before you see it on the surface would be down in the bedrock, which is the basic foundation, if you will, supporting the overburden of the soil. And we didn't find any indication.

MS. BARB LOVE: Would there be any way of determining through your wells that you have now ground water contamination? Or I mean what would be the possibility of a sinkhole happening in a formation of that group, you know, because of even, you know, from say leachate?

MR. BROWN: In this area we have here, which is commonly geological referred to as Carrs topography, where you have these vast caverns and caves and shales and things like that, I don't think you could really ever say that one area would never have a sinkhole.

MR. ALLEN: There are sinkholes developing in the formation.

MR. BROWN: We had no indication of them presently at the site.

MS. BARB LOVE: I guess that would lead to my next question. I realize of course that cost is an important factor, 640 or 70 million versus 14 or whatever, but I often wonder, you know, down the road what is it going to cost if something like this would happen and you would have to go back again. I mean it's like six of one, half a dozen of the other. Wouldn't it be better just to get rid of the stuff and -- I mean clean it out?

MR. BROWN: That indeed is the intent and the goals of the CERCLA, is complete destruction, total reduction of the toxicity building volume of the waste.

Unfortunately, that cannot alone, you know, that is one of the criteria, okay. You can't base everything on that one alone because what are you going to do, you know, just what are you going to do with everything.

Ideally that's correct, and that's the intent, to come as close to that as we can.

MR. ALLEN: The development of a RCRA landfill will still have that same potential hazard. If a sinkhole developed beneath it, as Earl explained, it has a cap above and a cap below basically to encapsulate the waste. So, you know, a potential for sinkhole developing beneath that encapsulated pod still has that same potential effect that it could breach, you know, your RCRA constructed landfill.

MS. BARB LOVE: You're saying if it had a liner even?

MR. ALLEN: Right. If it had a liner you could still potentially, if a sinkhole developed, that's still, you know, the same effect on a cap, would be realized on a liner.

MR. BROWN: The development of a major sinkhole or a major mine subsidence or something like that generally are considered as catastrophic occurrences and they're really hard to predict, okay? You study as much as you can and try to estimate.

As I said, we, through the geophysical and the mapping of the bedrock, we have in our ARAR report a contour map based on that data that shows what we perceive to be the surface of the bedrock underneath the landfill there, and at this time we have no indication of a sinkhole.

MS. BARB LOVE: Can I ask how far -- I noticed you mentioned regrading under that number 3 alternative. Right now the landfill is I don't know how many feet above the road level there.

ORIGINAL (Red)

MR. ALLEN: 30.

MS. BARB LOVE: 30 feet. And if I read that right, I figured that you would be adding about four and a half more feet with the gravel and the soil and whatever?

MR. BROWN: Approximately correct, yes. That's at the southern end. If you look at a cross section that we have of those alternatives in the feasibility study, chapter 5, when we presented them, the regrading plan is basically to take all the drainage, anything that would fall through precipitation on the site, we can control that, and to do that we have to raise and lower certain areas.

MS. BARB LOVE: So the highest point you're saying would be about 34 foot high?

MR. BROWN: I don't recall exactly the numbers, but I know we do a cut and fill. Some areas we scrape off, some we build up.

MS. BARB LOVE: Do you expect that to dry up underneath that cap eventually?

MR. BROWN: Eventually, yeah, if the cap functions as designed [illegible] reason that the waste would not dewater. The time that that would happen is impossible for us to predict.

MR. ALLEN: Based on our data it indicates that the waste is not intercepting the water table. The waste is above the water table. So if you encapsulate, so to speak, a cap over top of it, with time that will dewater, dry out. You can accelerate that with a number of different methods, but with time --

MR. BROWN: What Jeff meant when he said that the waste wasn't in contact with the water table, what he meant was the only way the water can go through that waste and cause a migration of contaminants would be to go downward through the rain. The water table would flow horizontally and the waste is above the water table.

So if you effectively reduce water flowing down from that waste, then it's not in contact with the water flow horizontally. You effectively reduce that and it should dewater. The time we don't know.

MS. BARB LOVE: Thank you.

MR. JOHN KNAPP: You're assuming

all water will be -- will move strictly vertically in that soil structure? There will be no lateral migration of water from the surrounding field through the cap?

MR. ALLEN: The way that -- that's basically it. You may get minor migration, lateral migration; however, the way these caps are constructed, you cover enough of the edge that you pretty much, you know, intercept anything that's trying to migrate in. The vertical migration will, as I indicated, be basically vertical.

There may be minor, you know, migration laterally if you would say have a course within your soil, you could build up a minor pod of water, but still 99 percent of it is going to be down and out.

MR. JOHN KNAPP: So the soil around that is basically uniform, there's no course?

MR. ALLEN: There are minor course lenses; however, we didn't find that they were interconnected. We had course lenses in constructing the deep wells move eight feet away and you couldn't even find the course lens. So it doesn't appear that these little courses --

basically what these course zones represent are the weathering products of the formation beneath it.

Because of that, you know, we were basically in Allentown formation, which is pretty consistent. These course lenses just represent little churdy members or little churdy bands within the formation and apparently are not very extensive, an outcropping. They don't even appear to be very extensive, a matter of feet. Not bedded in any way.

MR. TOM KELLOGG: How far beyond where you found contaminated soil do you plan to have the cap go, how many feet or yards or --

MR. BROWN: The cap goes outside. The cap comes over and curls under, ties in around the outer edges and it goes to a point -- for the level of detail we have on this it's hard to tell. That's something that will be shown in much more detail during the design of it, okay, but to let you know in the design, it is pointed that the land, horizontal delineation of it, goes into a clean material. It's tied in and synthetic membranes are tied underneath. So we go outside the contamination.

MR. KELLOGG: Do you have a

standard amount that you go beyond?

MR. BROWN: I'm not -- yeah, I don't -- does the state have?

MR. ALEXANDER: No.

MR. BROWN: All we know is we tie into a clean area. To my knowledge there's not a specific, you know, five feet, ten feet.

DR. SMITH: How durable is this cap with heavy equipment going over the top of it?

MR. BROWN: How durable is it with heavy equipment? Well, heavy equipment is used to install the cap, okay. The cap isn't -- with the multilayer cap, you don't just have a carpet and roll it out. It is installed in layers. Even a two foot soil zone would be installed in four six-inch layers and it's compacted with heavy equipment, okay? So in applying the synthetic material, there's precautionary measures with the type of equipment that they use.

All this, both the synthetic liners and the clay liners do have some flexibility to them that are sufficient to withstand, you know, running over them with heavy equipment during insulation.

DR. SMITH: Is there any

literature on this about the durability of these caps?

MR. BROWN: Yeah. There's --

MR. ALEXANDER: There's a lot of testing. Each one of those -- and by the way, we really haven't selected the material. And there's several under consideration right now. But there are standard materials used in solid waste industry that are used in particular to cover, you know, RCRA or a waste fill and the like, and they essentially consist of high density polyethylene, some people use polyvinylchloride, and there are materials such as low density polyethylene, and all these are run through a series of tests, okay, which tell about its strength, i.e. puncture proof, et cetera. So there are -- there is literature, a lot of literature.

MR. ALEXANDER: Frank brought with him a sample of this material.

MR. JOHN CLARK: While he's getting that, let me just ask this question. How successful have these caps been where they are currently in place, and when was the most recent cap put in place, and where?

MR. ALEXANDER: It's happening

all over. I can't tell you exactly where, but I'll just tell you this. I mean that's a good question. Because right now we're doing throughout the whole nation a lot of closures of these types of facilities, and although they've done laboratory testing on a lot of these materials, that really, you know, we can't draw any conclusions right now.

There's a lot of discussion in the industry on just how successful -- state law to close a hazardous waste landfill permits a 50 mill cap made of this type of material. This is a high density polyethylene material. So that's how they're closing by law hazardous waste landfills. We're doing the same thing at the Dorney Road site. We're applying the same standards, so its -- let's make that clear.

MR. JOHN CLARK: The durability and the lastability is theoretical at this point because none have been in place long enough to know whether they're going to do the job.

MR. ALEXANDER: That's somewhat true, but --

MR. BROWN: Well, they've been used for years in just the solid waste industry, municipal landfills.

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MR. JOHN CLARK: The caps have been used to close up toxic dumps? Where?

MR. BROWN: I don't have a for instance.

MR. ALEXANDER: Used as liners, yeah.

MR. JOHN CLARK: The cap, as I understand it, is different than a liner.

MR. BROWN: It's on the surface.

MR. GEORGE GANYLAE: That is on the surface and that is underground. And you have a number of sites that are being -- synthetic liners being installed at the present time, Pottstown landfill, Rose landfill in Bucks County. Those are the two that would be the closest to this area.

MR. BROWN: You have to have the synthetic liner system installed to get a RCRA permit to operate. So they are being in place and being used.

MR. ALLEN: The actual synthetic material is not exposed to the surface. It does have a soil cover on top of it, so it's not setting in the sun deteriorating.

MR. BROWN: Topsoil on top of

that. We establish a vegetative cover which is maintained periodically.

MR. ALEXANDER: In addition to that, it's also -- the amount of cover that we put on the material is to prevent frost action as well. So there's sufficient precautions taken to insulate the material from degradation either by light, which in some cases a PVC could be degraded which, by light, which I don't think we'll choose, or biomechanical degradation.

MR. JOHN KNAPP: You seem to be recommending -- or at least recommending 3A or 3B. Is there going to be some discussion tonight of physically what that's going to look like, the areas for the storage ponds, et cetera?

MR. ALEXANDER: I have something right here that may help. What we have here is filter fabric. This is called geonet, and this is the membrane. And this particular membrane is high density polyethylene, and it's very commonly used.

What happens is this flow net here, this geonet here produces essentially a layer where water will infiltrate the upper layers, our protective cover, and hit this geonet, and essentially flow to, you know, off-site, off the landfill. Okay?

The membrane of course is to prevent infiltration of water into the landfill itself. I mean that's really the primary purpose, is to prevent infiltration into the landfill, thus making contaminants mobile. We can pass that around.

This material here essentially catches all the fines and prevents it from entering into the geonet. And it has an infinite permeability. In other words, water will percolate or infiltrate down to this layer and it will move very quickly horizontally to a discharge point which will be collection pipes.

MR. BROWN: Figures 4-1 and 4-2 in the feasibility study do present schematics of how these materials that Tim is going to show you, how they fit in and how they are layered between the synthetic and the natural materials. We didn't happen to make a --

MR. JOHN KNAPP: The other question was relating to -- one of them was mentioned by Mrs. Love. You had mentioned some holding ponds, et cetera. Are you going to show any overview of where these are physically going or the size? I think the newspaper description was

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probably in error. You are saying the newspaper article indicated a 24 hour rain for some --

MR. BROWN: 25 hour 24 year storm.

MR. JOHN KNAPP: You certainly aren't meaning it to be raining for 24 hours for 25 years.

MR. BROWN: No. What it is, what that is is that's the worst storm in a 25 year period, that it rains for 24 hours. That's a typical design.

MR. JOHN KNAPP: It did not read that way in the paper.

MR. BROWN: If it rains for 25 years, we're not going to worry about nothing. In the feasibility study report, we have a plan of every alternative, okay. Essentially those two ponds are going to be located in this area up here. It's going to collect the drainage from this half of the site that goes up this way, okay, and we have another pond being relocated down here in this area that collects -- there is a hillside that runs along the slope that runs along this edge of the site, if you're familiar with that. That won't be disturbed in the regrading.

So there will be runoff from that out-slope, plus any of the ditches that come along -- the drainage ditches that come along the two sides, east and west.

MR. JOHN KNAPP: The northern area there is what's currently -- there's corn planted in that.

MR. BROWN: There's currently nothing planted here.

MR. KELLOGG: Corn pasture.

MR. JOHN KNAPP: It was last year's corn. I stand corrected.

MR. BROWN: I've only seen it in grass.

MR. JOHN KNAPP: It's currently outside of the area that's impounded.

MR. BROWN: That's correct. We found no -- the only contaminant we found in that area on surface soils was pesticide, which was in all the local soils. We didn't attribute that to this site specifically.

MS. BARB LOVE: The monitoring wells, you mentioned 16 all together. How often will they be monitored, and will they continue to be monitored after the cap is in place?

MR. ALEXANDER: This goes back to what we talked about originally, about dealing with operable units. Now we were really looking at the landfill proper in this operable unit. In February we're going to come up with another feasibility study that will discuss what we're going to do with the ground water, okay?

Now, there was a reason why we divided the site into operable units and it was because, you know, it's pretty much a logical conclusion that this is what was going to happen to this site. It was going to be capped, for a variety of regulatory statutory requirements, and also an evaluation of nine points that Mr. Brown went over.

What we were interested in was facilitating a, you know, just getting the remedy implemented out here. We wanted to get something done out here. And that was our goal. That's why we did it like that instead of wait until February.

Now we can turn around and actually begin design on this project instead of waiting another half a year. And that was our ultimate goal here. Was to get something going and try to do something with that site.

MS. BARB LOVE: Are they being

monitored now?

MR. ALEXANDER: The monitoring wells, we took two rounds of samples from those monitoring wells. No, they're not being monitored presently, but that issue will again be addressed in the feasibility study.

MS. BARB LOVE: Would that be able to pick up say, for instance, I don't want to keep binging on sinkholes, but to me it seems to be a logical --

MR. ALEXANDER: Yes. Yes. In fact, that is a really good question.

MS. BARB LOVE: Would those monitoring wells be able to pick up -- I mean because when a sinkhole happens it's something that's very quick, and I mean how -- it would be difficult to control, but would those monitoring wells be able to pick up something like that?

MR. ALEXANDER: Absolutely.

MR. BROWN: To clarify something here that may be a little bit of confusion, let me get back up here. The ground water monitoring program that's part of all the alternatives except 1, well, even in 1, doesn't include all the monitoring wells that we installed on-site. Let me get this picture of the wells here, and I can show you. I'm getting faster.

The monitoring that will be done in the downgradient wells, okay? We do three downgradient, actually three downgradient and one upgradient. Our upgradient wells are MW11D over here. The downgradients being 5, 5D2, 2D, and 3-3D.

In other words, our monitoring is going to be done with these alternatives when they are -- when it's implemented, on a semi-annual basis. So we pick that up twice a year, okay.

If something, as I said, a sinkhole or mine subsidence, major things that happen very rapidly, 20 foot or something like that, I think would be noticed and reported. If it's a slow settlement, if it's a slow sinkhole that may occur over several years, something like that, each -- the ground water monitoring, or even over six months, would pick that up.

MR. ALEXANDER: We're talking about releases of contaminants, because you'd be submersing waste essentially, if that were to happen, you know. The contaminants from the waste would become mobile through the ground water media,

ORIGINAL (Red)

and that's what you'd be picking up. So that's the answer to your question.

MR. ALLEN: We will be monitoring changes in the contaminant levels. It will not detect an actual sinkhole. It won't tell you where the sinkhole is. But it will detect changes in water quality.

DR. SMITH: These monitoring wells, are they all uniform depth or did you go until you got water or what?

MR. ALEXANDER: Jeff, you want --

MR. ALLEN: Monitoring well network, off-site monitoring well network, was designed to go a maximum of 100 feet with shallow wells that -- for instance, where he mentioned 3-3D. 3 is a shallow well. It is -- the screened interval goes ten feet into the water table, from that point you have a continuous interval monitoring from that point down to a hundred feet then is the deep well. That would be 3D.

That way we are monitoring basically a continuous interval, but yet we may be able to see some variability in the water column due to certain organic compounds are known to float, so we'll be able to detect any changes in say the shallower portion of the aquifer due to release of biter compounds. They do not monitor past 100 feet though.

That was just at the time that was the design of the investigation, was to monitor.

MR. BROWN: Once you get into the water table aquifer, we found with our permeabilities that the horizontal component of flow is tremendous. I don't recall the numbers. Jeff may.

MR. ALLEN: It varies up to 53 million gallons per day leaving -- well, the way it's based is you take the entire effective perimeter of the site, you take the thickness of the aquifer, and the hydraulic conductivity of the aquifer, and if you assume a flow coming in from say the northeast or northwest as the case is, if you assume a consistent flow through that area, you can calculate up to 53 million gallons per day passing beneath the landfill area. Now that's not 53 million gallons per day contaminated. That's 53 million gallons per day total passing up to that.

Our low range was down to I think it was 500,000 gallons per day. That was based on a low calculation we received from one of our tests.

But that just tries to -- all we were trying to do there was try to get a feel for the volumes of water that we may be dealing with, the type of flow velocities that we could be dealing with within those aquifers. And what it tends to indicate is that the flow is fairly high beneath that landfill.

MR. BROWN: The overdriving direction is laterally, and the top 100 foot that we have monitored, the tendency for that material, as I said, it was lateral, so it's not likely it would go below that.

MR. ALLEN: We also performed some vertical gradient analysis where what you're evaluating is which way the water is flowing within the aquifer. Is it flowing at -- say you've got a horizontal layer flowing this way, you also get gradients going up and gradients going down based on -- it's called a recharge and a discharge areas within the aquifer. What we found is that over 75 percent of the site is underlined by a discharge area. Discharge areas are areas where the gradient is flowing upward. In other words, deep water is flowing towards the surface.

What that will tend to do is any kind of organic or any kind of compound that is emitted from the site is going to intercept the water table and it's going to be carried out in a shallow layer along the surface portion of the aquifer. It tends to not be carried deeper into the aquifer.

DR. SMITH: The reason I made that question, down at the Wessner place, there is water coming down from Terry Hill, water is coming out at the barn at my farm. There's water coming out of the side of the hill too. But our well is 209 feet deep, which is lousy.

MR. ALLEN: But you may be in a deeper fracture system. When you deal with carbonates, you -- what we're looking at the landfill is a shallow fracture dolomite that does not necessarily -- you may be in another formation on Terry Hill which may require you to go a lot deeper than you would in the vicinity of Dorney Road to get the water.

Typically drillers drill until they get enough water to produce in a home. If you've got a tight formation on the upper portion of the aquifer, it doesn't mean that the water table is not there. It doesn't mean that that rock is not saturated. It is not saturated and capable of producing a sufficient quantity of water. So, you know, you may have to drill to 200 feet till you get enough production to run an aquifer. That may be the case.

The springs, as in his case, those may be due to -- I've heard it described as -- I really don't know the details of the formations on Terry Hill, but I know I've heard that there's a shale member goes through there, and a lot of times shale members will tend to force water to the surface and you'll get Artesian flows on the surface due to the contact on the shale members.

MR. JOHN KNAPP: Was there some reason why that spring was not tested? It would seem seeing it was a surface --

MR. ALLEN: We felt that it was due to Terry Hill and wasn't being affected by the landfill. You're actually on a divide. Your spring elevation is higher than the valley, so we felt that it was actually separated from the landfill. Water would have had to flow up.

MR. JOHN KNAPP: But not higher than the landfill.

MR. ALLEN: Not higher than the landfill, but what it would mean is water would have to flow down beneath the valley and then up and out the side, and water doesn't flow uphill, I guess is what it amounts to.

MR. JOHN KNAPP: Water can flow uphill in an underground aquifer. It certainly can flow uphill.

MR. ALLEN: In an Artesian aquifer, right. But again, it's based on what we determined from regional geology, regional published studies that have been done in areas, that Terry Hill is basically the primary recharge area for the entire localized area, which means everything is flowing from basically Terry Hill towards Dorney Road, which basically makes that spring outside the affected area. It would have been an upgradient position. It would be, you know, just another upgradient sample.

And I guess what it amounts to is we didn't feel that it would be impacted by the landfill. We were more concerned with the possibly your home, well, since it is down, you know, it's --

MR. JOHN KNAPP: Which wasn't tested either.

MR. ALEXANDER: But there were some.

MR. ALLEN: There were some along that road. I didn't know that yours wasn't. But there were a total of --

DR. SMITH: Our water goes down to Terry Hill. I can show it to you. It runs down the valley to Mickey's place.

MR. ALLEN: I'm not sure where Mickey's place is.

DR. SMITH: I'd like somebody to come around sometime, because I'll tell you, if you're in the process of spending 12 million dollars to rectify this, I think you could have spent a couple hundred dollars going around and testing all our wells, around the perimeter.

Preninger right next door to me, they were never tested, down the street from us, I'm right on the edge of it, I'm right next to Terry Hill, and all the wells down below weren't tested.

And it would be a cheap -- your study would have been a lot more feasible, logical, if you would have done that and had it here. Now these wells were taken care of.

I have a well 48 feet deep which goes dry during the summer. I've got water coming out the side of the mountain and I've got 200 foot well within 300 yards of each other. And if their well wasn't tested --

MR. BROWN: Okay. Just to let you know the rationale or what we did to examine the residential wells, during the initial site reconnaissance, we went along the site. If you look in the RI report on figure 3-4, and I think Jeff had the residential wells that we did monitor, we went to every house, you know, along the northern, along Trexler Road, and even over on Mertztown Road asking people, getting information.

DR. SMITH: I disagree with that completely. I asked my neighbors and none of them were tested.

MR. BROWN: What I'm saying is I'm not sure everyone was home, everybody was contacted at that time. I know we went out there and went up and down those roads doing inventory to do a residential well sample.

DR. SMITH: You could have left a note for us.

MR. JOHN KNAPP: Contact doesn't mean rapping on a door. Contact is with a person.

MR. ALEXANDER: That's true. But just understand that there was a rationale between the wells that we sampled.

Number one, we took in consideration technical expertise of the geologist who evaluated such variables as position in terms of its location to the landfill, its location with respect to Terry Hill.

We also took into consideration proximity of these homes, how close these homes were to the landfill, and the logic was that those closest to the landfill, if they were going to be influenced by the landfill, would be those homes that were closest, right.

DR. SMITH: Disagree with that. With limestone footing, you can have plumes that go miles, and I have proof of that.

MR. ALEXANDER: That was the basis of our initial cut. Later on when the data started coming in, we had geologic and hydrogeologic information as to where the ground water's flowing, so that is also logical. So that's what we did.

MR. ALLEN: Our data does not or rather did not refute or go against anything that it previously had done as far as a regional sense. It all seemed to fit a regional picture that had previously been depicted. That, you know, we're talking about the monitoring wells that were installed, the analysis of the monitoring wells. It seems to fit what was regionally depicted within, you know, given degrees of accuracy of what the regional picture said.

MR. ALEXANDER: Tom, you had your hand first.

MR. TOM KELLOGG: You talked about initially you went around and tried to contact people. I recall that our well was tested about five years ago, although I don't remember if it was EPA, DER or whoever. Is this what you're talking about, about five years ago?

MR. ALEXANDER: Not at all.

MR. BROWN: We're talking about in the fall of '87 when the investigation began.

MR. TOM KELLOGG: Because I don't know who did it back then. Do you guys have any idea?

MR. ALEXANDER: There were a lot of investigations leading up to the one that we did, and that also provided us with a lot of information.

MR. BROWN: State water quality

department, the county health, all kinds of people could have reason to be out there and sample water. Our inventory trying to collect residential well data was done prior to developing, going out and doing the samples.

MR. JOHN CLARK: How many wells were tested?

MR. BROWN: Seven residential wells.

MS. DOROTHY HOTTLE: Dorothy Hottle, and I'm a resident of Trexler Road also. It seems many of us are residents of this wonderful landfill. Is there any way we can have some piece of mind for our wells? We understand your logic, you're saying most likely our wells aren't contaminated. But some of us could be really concerned. Can we have this done, or how do we go about getting it done, even if we'd have to pay for it as individuals?

DR. BRUNKER: Could we discuss what contamination means in these wells, how dangerous this is? Would you like to?

MR. ALEXANDER: There was just one well. There was one well we found contaminated, and it was also, excuse me, Dick, it was also in line with the way that our whole understanding of the site works. So just our understanding seems to be borne out in that Edgar Muth's well did have some contamination. Mr. Brunker, now address just what that contamination was and what it means in terms of health.

DR. BRUNKER: There was one well. When we talk about this type of contamination, we have to consider two things. One, is this contaminant toxic, that is will it cause some type of systemic effects, affect our liver, your central liver system, if you consume small amounts over a long period of time, or does it cause cancer.

Now here we're talking about things which are alleged to cause cancer. And let me tell you to begin with that none of these things in Mr. Muth's well have been shown to cause cancer in human beings. But two of the substances, trichlorethylene and tetrachlorethylene, have been shown to cause tumors in laboratory animals.

Let me hasten to say that tetrochlorethylene is the stuff your clothes get cleaned with at the local cleaners and you get big lumps of it when you pick up your clothes. And trichlorethylene is a very common solvent that's still used in industry. The amounts they have here under Mr. Muth's well -- and by the way, this has never been linked to the site for some reason. These things have not been found on the site. These are very common everywhere, are nine and six parts per billion.

MR. ALEXANDER: They are linked to the site. Let me set the record straight

MR. ALLEN: They weren't linked to the ground water, but in the soil.

DR. BRUNKER: They're very common. No one is sure whether they came from the site or not. These levels calculate out to be capable of causing an additional about 12 cases of cancer in population of 1 million people over 70 years. Now this exceeds our general criteria at EPA that any of our contaminants should not elicit more than one additional in a population of a million over 70 years.

Just to put some proper perspective, you should appreciate the fact that 42 percent of us have a chance of getting cancer before we die, and 25 percent of us will die of cancer. But if that 42 percent of us have a chance of getting cancer before we die, that means we got 420,000 chances in a million of getting cancer before we die. And the Muths have 420,012 in a million chances of getting cancer before they die if they drink this water as their sole potent water source for 70 years.

Now, that is above what we accept in EPA. Any questions?

Now, there are some soil data here too concerning PAH compounds, polypsychic aromatic hydrocarbons. These are things that soot in fireplaces are made of, these are things that the black soot that comes out of diesel engines are made of, and these are known to cause cancer in laboratory animals and in humans also. They're very common. They're everywhere, and on an exposure scenario for children a couple or three times a week ingesting a hundred milligrams of the dirt, the soil from that site every day for five years, according to the contractor who calculated this out, there's about 2 or 3 chances in a million of the people going on the site getting cancer from that type of exposure.

These numbers we've used and criteria we used are said to be at the 95 percent confidence limit. There's a lot of statistics involved in this, extrapolating laboratory animal data to humans.

Let me say that we mean there's 19 chances in 20 we are overestimating this risk and one chance in 20 we are underestimating this risk. There's indeed a strong possibility that there is no hazard at all from these at this level.

MR. TOM KELLOGG: I don't think that was the point. Edgar is concerned about his well. I think the real concern is not the statistics of laboratory tests, the results of the tests that have gone on over the years. The concern is that the people of the area want to know what's in their water.

DR. BRUNKER: That is what's in their wells.

MR. TOM KELLOGG: Period. Forget the numbers.

DR. BRUNKER: They know about seven.

MR. TOM KELLOGG: The thing is, our water currently is clean. It's hard, but it's clean. The thing is that's our well. But there are a lot of other people around, and I think they have a right to know what's in the water.

And if you're going to be spending 12, 14 million to cap it, what's another 500 dollars a year per well to test it. I mean that's trivial. You're the doctor. But what I'm asking is is that such a big additional expense for the EPA and for the DER, to add this to the project?

MR. ALEXANDER: What we're getting into is really the ground water issue, okay? This is open. At the very minimum, the very minimum, there will be wells out there which will be sampled periodically. I'm talking about frequencies, times a year, okay? And they will act as watchmen at the landfill.

At the same time, a landfill, you know, should be showing some effects of drying up from the placement of the cap. So that's really -- let's get away from all the millions of criteria, that type of thing. In all practicality, that's what we want to do, cap that landfill, hopefully dry it out. We're going to consider it a ground water issue. That's still open.

But at a very minimum, monitoring wells will be there to act as watchmen. And that's at a minimum. And that would be like the no action alternative that we weren't doing anything with the landfill itself. Now that's a no action alternative, leaving the monitoring wells there and just sampling the monitoring wells.

MR. JOHN KNAPP: I think that the point that is still being missed is that you have a relatively few number of people who are around that area, certainly your gentlemen's time this evening as applied for salaries probably is costing more money than it would have had you gone around to all of the families in that area and tested it and said your water's safe, and you probably wouldn't have had to have the meeting tonight.

MR. BROWN: I agree that's a major concern. One restraint that we work under that I must try to make clear, and I think it may address the issue, I think your wells should be sampled. Under the RAFC authorization, the funding that we have, we have to investigate site-related contamination.

MR. JOHN KNAPP: I'm not talking about you. You were contracted by the government to do certain work.

MR. BROWN: I'm saying there are available within the state, Tim may know, through the water quality management or someone else to get your water tested.

MR. JOHN KNAPP: I'm not raising the issue with you. You were given a contract to do a certain amount of work.

MR. ALEXANDER: Please --

MR. JOHN KNAPP: The issue that I'm directing to is those individuals who are responsible to the general public and to come up with this kind of a plan.

MR. ALEXANDER: I appreciate your concern, I really do. And we'll talk about it and see what we can get done, okay?

MR. JOHN KNAPP: Were there any heavy metals? You've talked, the doctor talked about just organic.

MR. ALEXANDER: I'll tell you why we talked principally organics. Those were the constituents we found in our monitoring wells and in Mr. Muth's well. Inorganics tends to be less mobile. We weren't finding them.

MR. ALLEN: Especially in a carbonate environment where the pH's are high enough that any organics that leaves the light with leaching from the rain water, which is slightly acidic, assumes it encounters that high pH and is reprecipitated. The residential wells that were sampled were all within background levels, within normal standard background levels. Water in a carbonate environment tends to be hard. It tends -- a lot of times is very iron rich. Used to be an iron mine.

MR. JOHN KNAPP: But other than the iron, there were no other heavy metals?

MR. ALLEN: Not for residential wells. Some of the off-site monitoring wells did detect elevated concentrations, but if you look at nationwide ranges, for the most part they were within natural ranges too. Lead was detected in the on-site landfill monitoring wells.

MR. JOHN KNAPP: Because it was a battery dump, was it not?

MR. ALLEN: There were some heavy metals detected in the monitoring wells on-site and in very low concentration in a couple of the off-site ones, but not in residential wells. They were all within acceptable limits.

MR. ALEXANDER: Sir, you know, I understand your concern, but we believe that our study was a good study and I think we understand how ground water moves in the vicinity of Dorney

Road landfill. We've taken representative samples from we believe the Trexlertown Road area. However, you know, fine, if it brings you piece of mind, I agree.

MR. JOHN KNAPP: I was explaining the general feeling of the group, not mine, the general feeling of the two previous questions which seemed not to have been understood or addressed. I'm not talking about it on a personal basis. I've had my well tested.

MR. ALEXANDER: Fine. How was it?

MR. JOHN KNAPP: It passed the requirement for my bank to purchase. That's all the information that I have.

MR. ALEXANDER: They ran bacteria for you.

MR. JOHN KNAPP: That's exactly right. Nothing beyond that.

MR. ALEXANDER: Fine. But I hope you understand, you know, our point, my point, the Agency's point, is that we feel that we had a good study done here. But a piece of mind goes a long way, and you do live near the landfill, and I'm happy that you have an interest in this landfill.

I didn't expect to see as many of you people out here, frankly, and fine. We'll do that. We'll sample your wells.

MR. ALLEN: You had mentioned the AT&T. You said that your well seems to be going bad since the AT&T structure.

DR. SMITH: I'm just going at the time frame. I'm not blaming them.

MR. ALLEN: What I was going to point at --

DR. SMITH: But you know AT&T went to the Authority for their water because of the poor quality that they had in their own wells.

MRS. MARIE SMITH: They kept drilling.

MR. ALLEN: There are potential other sources in the county. We were evaluating the Dorney Road landfill. We don't know what's outside that Dorney Road landfill area. We were evaluating the landfill proper. If there's -- I don't know. There could be a landfill north of AT&T. I have no idea.

So I guess what I'm trying to say is AT&T could have done something. We have no way to tell that. We were just evaluating the --

DR. SMITH: I would like to have the same opportunity as AT&T did of spending two or three million dollars running an eighth inch line out from the Kuhnsville area. I would love that. In fact, I spent almost equivalent amount of money on mine. I've got 4,200 dollars worth of purification system in my basement which is not doing the job.

MR. BROWN: I have a question.

DR. SMITH: And every test I get back is -- I've had tested by various places, I've mailed it to Minnesota, I went to Allentown, I went to various other places, and they're all different in their results.

MR. ALLEN: What was the primary contaminant that you came up with, iron?

DR. SMITH: Iron is my worst, and sulfur is my --

MR. ALLEN: Those are normal, fairly normal components of limestone. I mean you can get fairly elevated iron components.

MR. ALEXANDER: He may be in shale. But then again iron is the same thing.

DR. SMITH: The only thing wrong with your logic is that five to ten years ago, we had no iron.

MRS. MARIE SMITH: We had iron, but it was drinkable water. I wouldn't drink it now.

DR. SMITH: Cloister's doing a land office business from us. But -- and the other thing is I would like to have a testing lab that I can depend upon. I've had various testing labs and they change from 0 to 6 parts on different days.

MR. BROWN: I just want to ask one question to help us. It's good that these concerns with the ground water are coming up being that we are yet to develop the alternatives to address the ground water. You said AT&T had an eight inch main? Where is the closest line to the landfill of public water system?

DR. SMITH: AT&T was drilling wells and you can see them in their property. There are little holes throughout their property. And they stopped doing it. They were going to short circuit the Lehigh Authority. They were going to get their own water, but they decided that it was not feasible because it was not good water.

MR. BROWN: Do you know where Lehigh Authority's closest water service is to us?

DR. SMITH: Comes down from Kuhnsville somewhere there.

MR. BROWN: Thank you. That's important in our addressing the ground water.

DR. SMITH: What's that land that's past my mother's place? Going into here, your tank is up here. AT&T's tank is over in Haas Hill, and it's about as big as your tank here.

MR. ALEXANDER: Okay. We hope we can resolve that issue by giving some attention to those wells that people living on Trexlertown Road, we can get those sampled.

MS. BARB LOVE: Excuse me. Did you say that everyone that has signed in on that list will be notified when you have this next hearing in February?

MR. ALEXANDER: Absolutely, ma'am. Again we'll go ahead and publish something in the paper all over again, and what we did is the people who we've been in contact with, and none of them showed up, except Tom, Mr. Kellogg, we sent them fliers letting them know that we would be here tonight to have this meeting.

MR. JOHN KNAPP: One of the gentleman who you talked to, Mr. Wessner, I am here for him as well as for myself. He happens to be out of the -- in Alaska at the present time.

MR. ALEXANDER: That's right. He told me he would be.

MR. JOHN KNAPP: But other than that, he would be here. But I am here at his behest.

MR. ALEXANDER: Fine.

DR. SMITH: The only reason I'm here is because he told me to come too. He's my brother-in-law.

MR. JOHN CLARK: One question here. When do you expect construction to begin?

MR. ALEXANDER: What we're thinking is we're going to look at your comments too. You have comments on the proposal, please submit the comments. So in light of your comments, we propose to place the cap probably a year and a half from now. That's when we would begin.

MR. JOHN CLARK: That would be the summer of '90, summer of 1990?

MR. ALEXANDER: Year and a half from now.

MR. BROWN: Spring of 1990.

MR. JOHN CLARK: Spring of 1990.

Anyway, 1990.

MR. ALEXANDER: Year and a half from now.

MR. JOHN CLARK: And what would be the estimated time of completion?

MR. ALEXANDER: I'll tell you what --

MR. BROWN: The cap implantation would be less than a year once actual construction begins.

MR. JOHN KNAPP: Where is this topsoil material proposed, or have you given any thought? It's not going to be the immediate area, I assume?

MR. BROWN: We don't know. That's a design criteria.

MR. JOHN KNAPP: I appreciate that. But had any thought been given, you're not using any of the immediate area from the ponds to do that?

MR. ALEXANDER: No. No. Absolutely not.

MR. BROWN: Immediate meaning the site, no.

MR. JOHN KNAPP: Or immediately

adjacent to the site.

MR. ALEXANDER: Absolutely not.

MS. DOROTHY HOTTLE: I have some concern about the methane gas vents that were mentioned. Can you just explain that? I don't know anything about it except that methane gas might stink. How is it generated by this landfill? Why must you vent it? It would just build up under that cap?

MR. ALEXANDER: Bacterial decomposition. And if there were to be building in nearby areas, our concern is for the lateral migration of that methane should it build up in sufficient concentrations and enter people's basements and it would be an explosive hazard.

MR. ALLEN: It would also affect the capping material. It would tend to lift the cap.

MR. TOM KELLOGG: Is there any way to dispose of the methane? Because the worst of the stink is usually in the middle of the winter, around February. That's when it really smells. It's clearly methane. You can't miss it if the wind comes the right direction. Is there a way to channel it or something with the vents?

MR. BROWN: What you're smelling -- methane is odorless and colorless. Methane itself doesn't smell. What you're smelling is biological degradation, the leachate, that brownish stuff, if you've ever seen that. That's what smells. When that's capped over, that smell, and only the methane is being vented, that will be eliminated. Because methane is --

MR. TOM KELLOGG: The smell isn't chemical, it smells like rotten food or something.

MR. ALLEN: That's exactly what it is.

MR. BROWN: That's not methane. It's coming from that leachate, that liquid that is seeping out, and very, very typical in municipal landfills, just the garbage and the refuse decomposing.

MR. RUSSELL KULP: What are you going to, when you cap this, what are you going to do with the runoff?

MR. ALEXANDER: The runoff is going to those ponds.

MR. RUSSELL KULP: All of it?

MR. ALEXANDER: Yes, sir.

MR. RUSSELL KULP: You're going

to guarantee that?

MR. BROWN: Those ponds are designed to retain 25 year 24 hour storm, okay, the historical worst storm for a 24 hour period in any 25 year time interval.

MR. RUSSELL KULP: Are you going to be cleaning up around the landfill, where all the muck is now, that you can't farm it?

MR. BROWN: The extent of the cap, okay, during predesign, additional information may have to be collected, okay? As we had mentioned earlier about tying the cap in, I think Mr. Kellogg asked that, we will find areas that are sure that they are clean before we tie the cap in. So those areas may or may not be.

MR. RUSSELL KULP: You can go a couple of hundred feet.

MR. ALLEN: A lot of that muck that is being generated now is on the southern side of the property, and that's primarily due to leachate migrating through the soil berm, leachate from the perched aquifer that we have on the site that is migrating onto that, through the soil berm onto the outside property. By drying up that aquifer though, we will eliminate that leachate

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popping out. It will no longer be migrating in that direction.

MR. RUSSELL KULP: You can go back there and there's about five to six feet.

MR. ALLEN: I know where you're talking about.

MR. RUSSELL KULP: Because I farmed all the way around that darn thing and nothing grows. You go back there to plow, you can have a gas mask on and plow around that thing. That's where your smell comes from.

MR. BROWN: That's the leachate, as I was telling Tom.

MR. TOM KELLOGG: Can you use some kind of equipment to dig that up and put it back on the landfill before you cap it?

MR. BROWN: As I said during predesign, we at this phase, as we are trying to even with the cost, we are trying to estimate here, there is a plus 50 minus 30 percent cost. We haven't nailed it down. During the design phase, additional data performance on selection of the liner and everything like that will be determined at that time. So that's very likely.

MR. ALEXANDER: So what you have

now are the elements of a design concept.

MR. ALLEN: The RI was basically designed to evaluate if there was a -- really was a hazard existing out there, not to totally evaluate all of the steps for remediating.

MR. KOLLER: Anymore questions?

MR. TOM KELLOGG: I have one thing. When the Superfund laws were first being created a couple of administrations ago, one of the big things was to try to get the responsible parties to help with the clean up.

Now I realize that's the EPA's responsibility, not the DER's, to try to get back to the landfill owners or the operators or somebody, to at least help. How far has that gotten, if anywhere, with the Oswald landfill?

MR. ALEXANDER: EPA has had a contractor Tech Law essentially do a lot of background research on the potential responsible parties. Soon I think we will jointly, is that correct, Jeff, we will be sending out notice letters to these potentially responsible parties, and this notice letter will afford these responsible parties the opportunity to come forward and consider undertaking this cleanup. So that's what we're doing right now. We're not in a cost recovery phase yet for the remedial investigation and feasibility study.

MR. TOM KELLOGG: The results of that attempt, do they have any effect on what you do?

MR. ALEXANDER: No.

MR. TOM KELLOGG: I mean if you get money or don't get money from the responsible parties, does that affect at all how much money you spend to clean it up?

MR. ALEXANDER: No. We've essentially, what we're doing here, is, you know, looking for your approval for this option, this alternative with the landfill.

What happens next is a record of decision will be written by EPA, that's under their authorities, and signed by EPA's regional administrator. That dictates what will occur out there, and what they're going to sign or put into the record for the landfill proper is that we'll be capping that site and we'll address all the issues that we covered tonight. It will be that design concept which we've described. Nothing will change.

MR. KOLLER: Anymore comments, questions?

On behalf of EPA and DER, thanks for coming. Please make sure that your name is on the register so we can keep in touch with you.

(Hearing concluded.)

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Sept. 8, 1988

I hereby certify that the evidence and proceedings are contained fully and accurately in the notes taken by me of the within hearing, and that this is a correct transcript of the same.

Wendy Engler Shade
Wendy Engler Shade
Registered Professional Reporter
Notary Public